

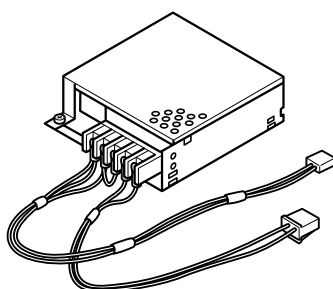
SERVICE MANUAL

MODEL
.....

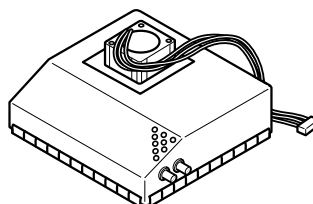
DEST
.....

BKM-301HD

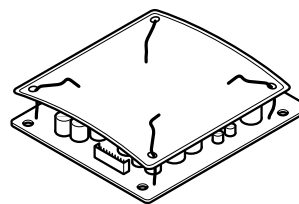
US/CND



POWER BLOCK



B BLOCK



GC BOARD

HD SDI INPUT ADAPTOR

SONY[®]

WARNING


This manual is intended for qualified service personnel only.

To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION!!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MAPQUE ! SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIÉCES CONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÉCE EST INDiqué DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.

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HD SDI Input Adaptor

Operating Instructions Page 10 **EN**

For installation, contact your Sony dealer.

Monitors Available

PHM-20M8U/14M8U

BKM-301HD

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SECTION 1 OPERATING INSTRUCTIONS

This section is extracted from
operation manual.

English

For the customers in the USA

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

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Overview

The HD SDI Input Adaptor BKM-301HD is an optional board that provides the HD SDI signal input ¹⁾ (one line) for Sony HD Trinitron Color Monitors, the PHM-20M8U and the PHM-14M8U.

Precautions

On magnetism

Do not place the monitor near any devices that emit magnetism (magnets, speakers, electric clocks, toys using magnets, health instruments, etc.). Magnetism will cause picture bounce, oscillations or picture discoloration.

Operating and storage locations

Avoid operating or storing the monitor under the following conditions:

- Extremely hot or cold places
- Humid or dusty places
- Locations exposed to rain
- Locations subject to strong vibration
- Near a TV or radio station that radiates high-powered radio frequencies

Others

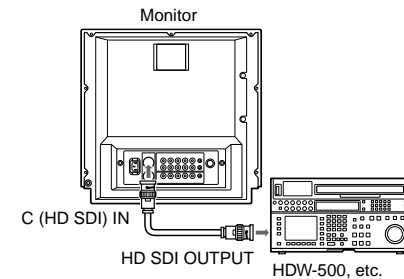
- Do not apply excessive force to the board.
- Wear an anti-static wristband when touching the board.

If the board is malfunctioning or causing errors, consult your nearest Sony dealer.

.....
1) The MONITOR OUTPUT signals do not satisfy the ON-LINE signal specifications.

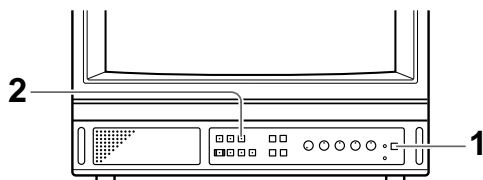
Connections

Connect the monitor and the digital VTR as follows.

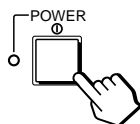


Operation

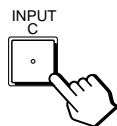
Follow the instructions below.



- 1** Press the POWER switch on the monitor.
The power indicator (green) is turned on.



- 2** Press the INPUT C button to switch the input.
The indicator (orange) is turned on and the HD SDI signal is input.



Specifications

Input/Output

HD SDI IN: BNC×1
Serial digital (1.485 Gbps)
Conform to SMPTE 292M, BTA-S004A

MONITOR OUT: BNC×1
*The MONITOR OUT signals do not
satisfy the ON-LINE signal
specifications.

Quantization: 10 bits/sampling
Frequency response: Y: 24 MHz ± 3dB
Pb/Pr: 12 MHz ± 3dB

Design and specifications are subject to change without notice.

Installation Manual for Dealers Page 13 **EN**

 This manual is intended for dealers.

Authorized dealers must read this manual carefully before installing the input adaptor.

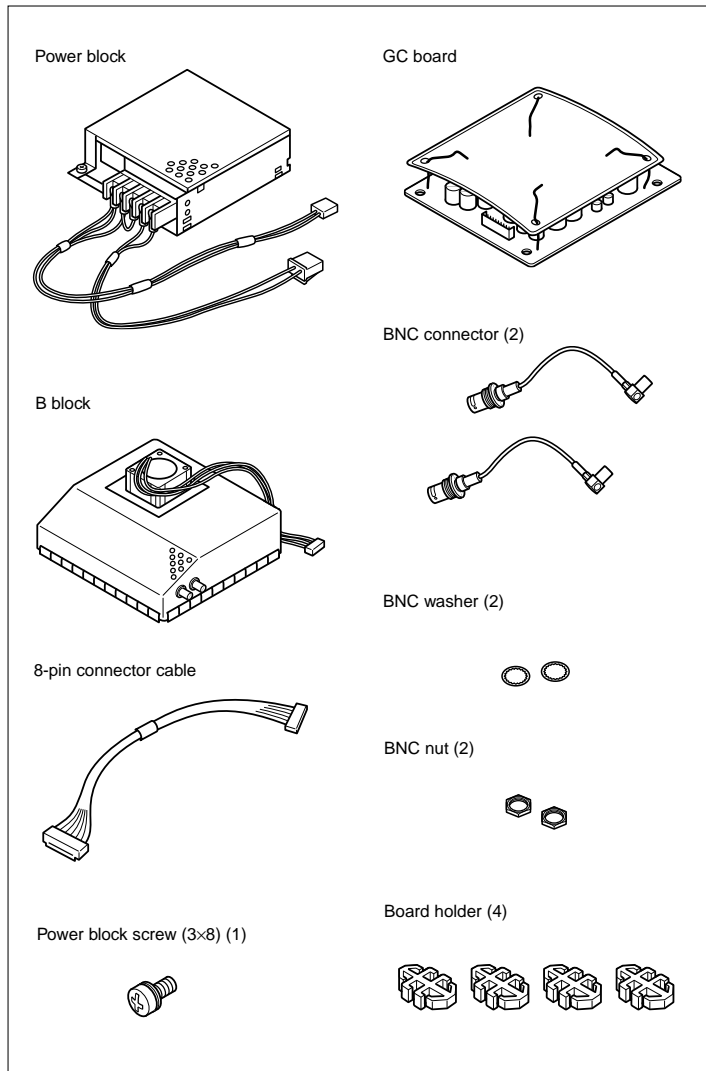
PHM-20M8U/14M8U

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Components



14

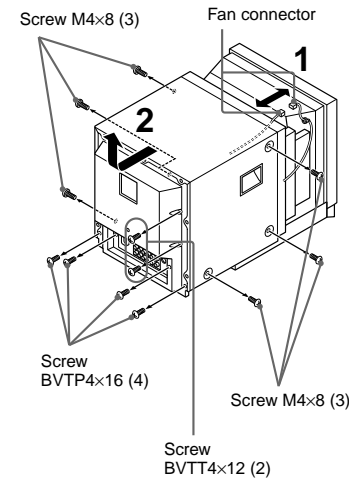
Installing the Input Adaptor

Install the input adaptor in the following order:

- 1 Power block
- 2 GC board
- 3 B block

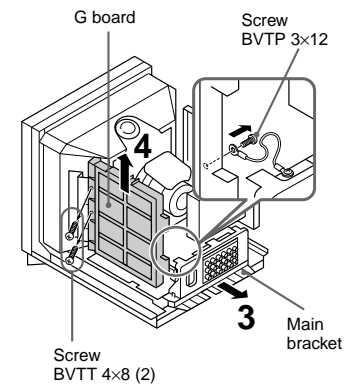
Before Installing the Input Adaptor

- 1 Remove the 12 screws that lock the rear cover of the monitor. Remove the fan connector on the rear cover.
- 2 Slide the rear cover back, then lift and remove it.

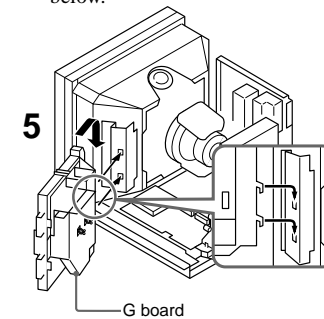


- 3 Pull the main bracket forward a little. Remove the screws on the G board and remove the cable between the terminal board and the G board. (PHM-20M8U)

- 4 Remove the screws on the G board and remove the G board.



- 5 Install the G board as figure below.

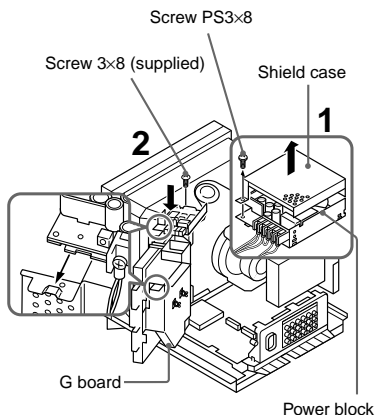


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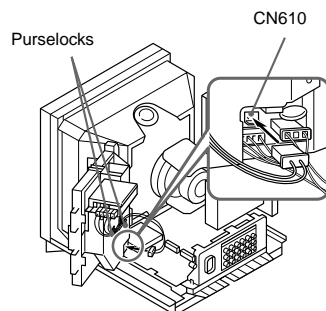
Installing the Input Adaptor

Installing the Power Block

- 1 Remove the screw (PS3×8) to remove the power block shield case.
- 2 Hook the power block (the shield case has been removed) on the G board shield case (see figure). Lock the power block with the screw (3×8) (supplied).



- 3 Install the power block shield case removed in Step 1. Lock the case with the screw.
- 4 Lock the power block cables (black/white and black/red) with the two purselocks (see figure). Connect the cable (black/white) to the CN610 connector on the G board.

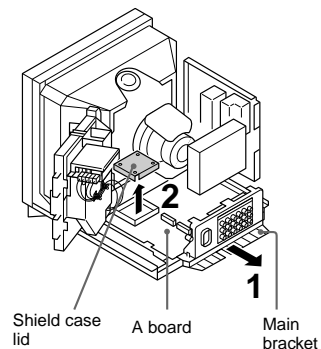


Installing the GC board

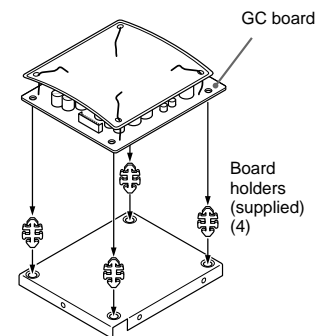
Note

Install the GC board after you have installed the power block.

- 1 Slide and pull out the main bracket.
- 2 Lift and remove the shield case lid (left-front of the A board).



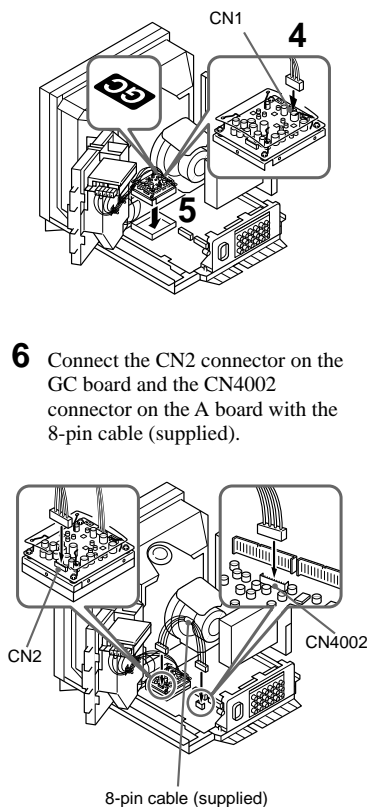
- 3 Insert the board holders (supplied) into the four holes in the shield case. Match the board holders and the holes of the GC board, insert the GC board into the holes.



(Continued)

Installing the Input Adaptor

- 4 Insert the cable (black/red) from the power block to the CN1 connector on the GC board.
- 5 Install the shield case so that the direction of the GC board is the same as in the figure.

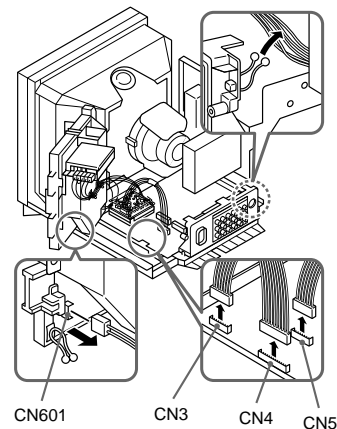


Installing the B block

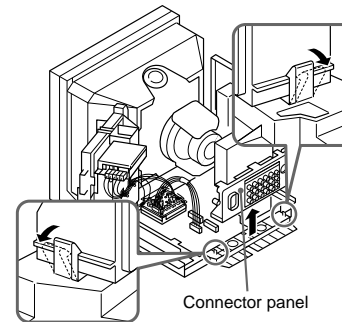
Note

Install the B block after you have installed the power block and the GC board.

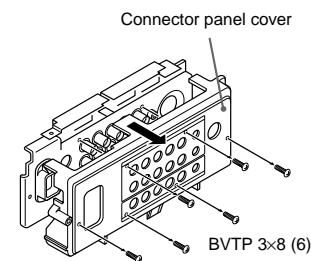
- 1 Remove the following cables:
 - Cable that has been locked by the purselock on the right side of the connector panel.
 - Cables that connected to 4 connectors (CN3, CN4, CN5 and CN601).



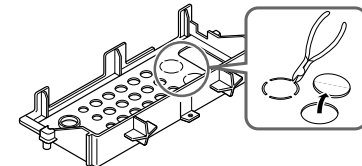
- 2 Remove the pawls that lock the connector panel. Remove the connector panel from the main bracket.



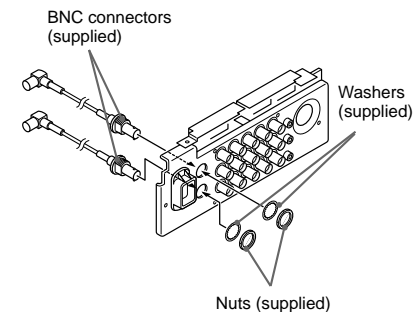
- 3 Remove the 6 screws from the connector panel. Remove the connector panel cover.



- 4 From the back of the connector panel cover, create two holes. These holes are for installing the BNC connectors. (Use pinch pliers as needed.)



- 5 From the back of the connector board, insert the two BNC connectors (supplied) through the two holes. From the front of the connector board, insert the washers. Lock the connectors with the nuts.

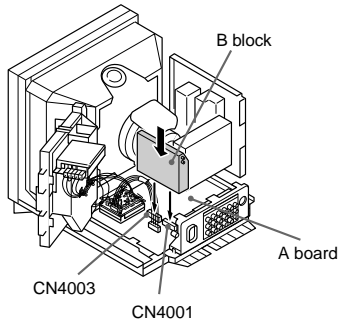


- 6 Use the screws to install the connector panel cover on the connector board.
- 7 Insert the connector panel in the main bracket. Reconnect the cables that were disconnected in Step 1.

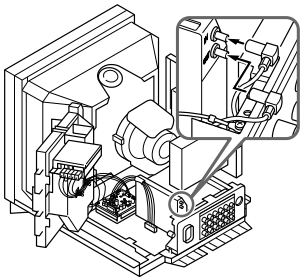
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Installing the Input Adaptor

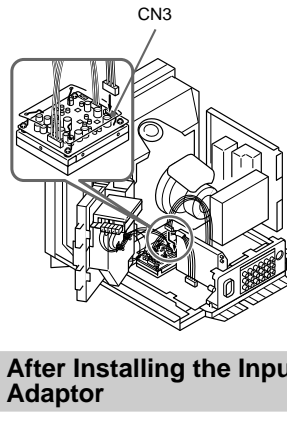
- 8** Adjust the main bracket position. Insert the B block in the CN4001 and the CN4003 on the A board.



- 9** Connect the IN/MONITOR OUT plug (BNC connector installed in Step 5) to the IN/OUT (B block connector).



- 10** Connect the cable (red/yellow/black) from the B block fan to the CN 3 connector on the GC board.



After Installing the Input Adaptor

- Return the G board installed in Step 5 in "Before Installing the Input Adaptor" to the original location. Lock the board with the two screws.
- Reconnect the cables removed in Step 3 in "Before Installing the Input Adaptor". Slide the main bracket back into the unit until it is set in the original place.
- Insert the fan connector removed in Step 1 in "Before Installing the Input Adaptor" into the monitor connector. Use the screws (12) to install the rear cover of the monitor.

Note

You cannot turn on the power unless you connect the fan connector.

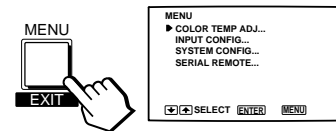
Note

Reinstall the components and cables just as they were before installation was begun.

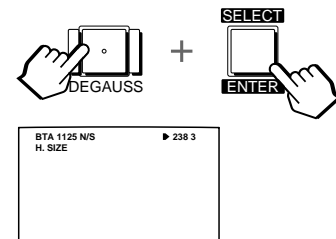
Rewriting the Service Mode Status

You need to rewrite the service mode status so that the input adaptor can accept HD SDI signals. The following shows how to do this.

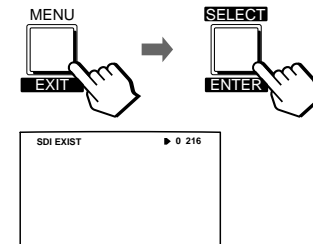
- 1** Press the MENU/EXIT button on the monitor. The main menu appears.



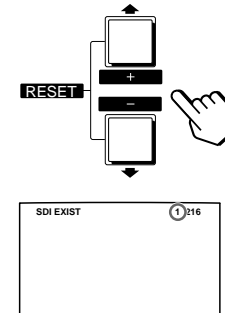
- 2** To go to the service mode, press the DEGAUSS and ENTER/SELECT buttons at the same time. The service mode status menu appears.



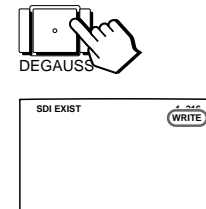
- 3** Press the MENU/EXIT and ENTER/SELECT buttons as needed to display "SDI EXIST 0 216" on the screen.



- 4** Using the +/↑ button, change "0" to "1" in "SDI EXIST 0 216."



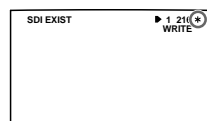
- 5** Press the DEGAUSS button. The "WRITE" message appears.



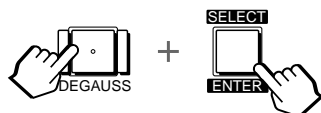
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Rewriting the Service Mode Status

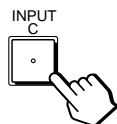
- 6** Press the DEGAUSS button again while “WRITE” is displayed. The “*” appears momentarily, then disappears. If the setting has been properly completed, “▶” appears to the left of “1.” This indicates that the service mode status has been rewritten.



- 7** Press the DEGAUSS and ENTER/SELECT buttons at the same time. This terminates the service mode.



- 8** Press the INPUT C switch. Make sure the indicator (orange) has been turned on. You can input the HD SDI signals.



SECTION 2

CIRCUIT ADJUSTMENTS

The BKM-301HD is an optional board of the PHM-14M8U/20M8U and therefore cannot operate by itself. Consequently when performing measurements and adjustments, mount it to the PHM series monitor. Use a monitor which satisfies the given specifications.

The following describes circuit adjustments which must be performed after repairs and maintenance of the BKM-301HD.

B board (Y gain adjustment)

B board (P_B gain adjustment)

B board (P_R gain adjustment)

2-1. PREPARATIONS

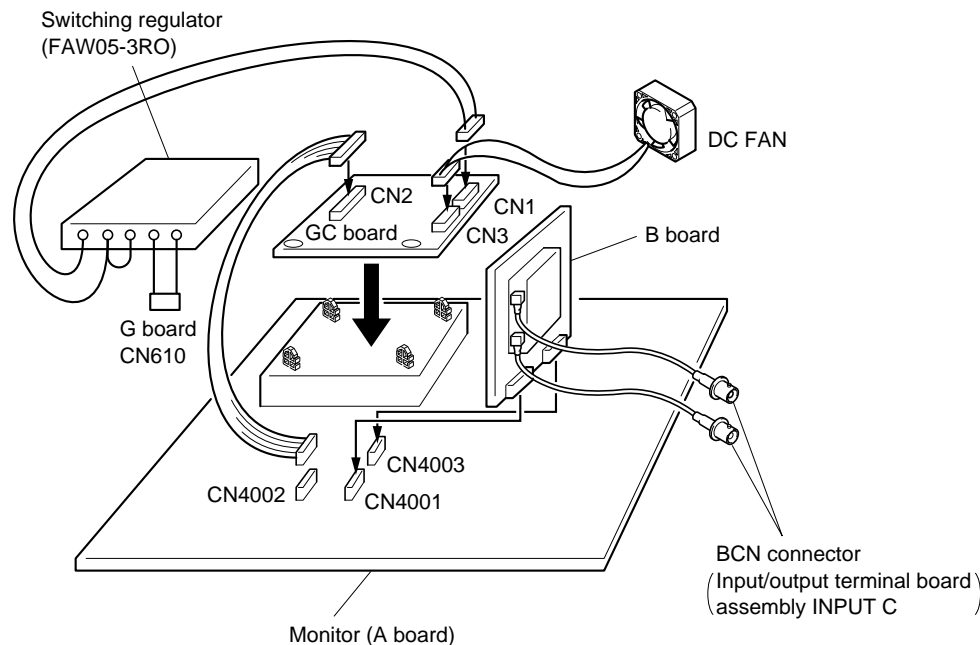
1. Equipment Used

| Name | Specifications | Equipment |
|-------------------------|--|--------------------------------|
| Oscilloscope | Frequency: Above DC to 150 MHz Above 2 phenomena (ADD mode) | TEKTRONIX 2445A or equivalent |
| HD SDI signal generator | 1080 specifications | Shibasoku TG15B6 or equivalent |
| Monitor | HD color monitor | SONY PHM-20M8U PHM-14M8U |

2. Tools

| Name | Parts No. | Remarks |
|-----------------------|-----------|---------|
| 1m BNC cable | — | |
| Adjusting screwdriver | — | |

3. Connection



2-2. B BOARD ADJUSTMENTS

Use the following tools for adjustments performed when the parts in the B board have been replaced.

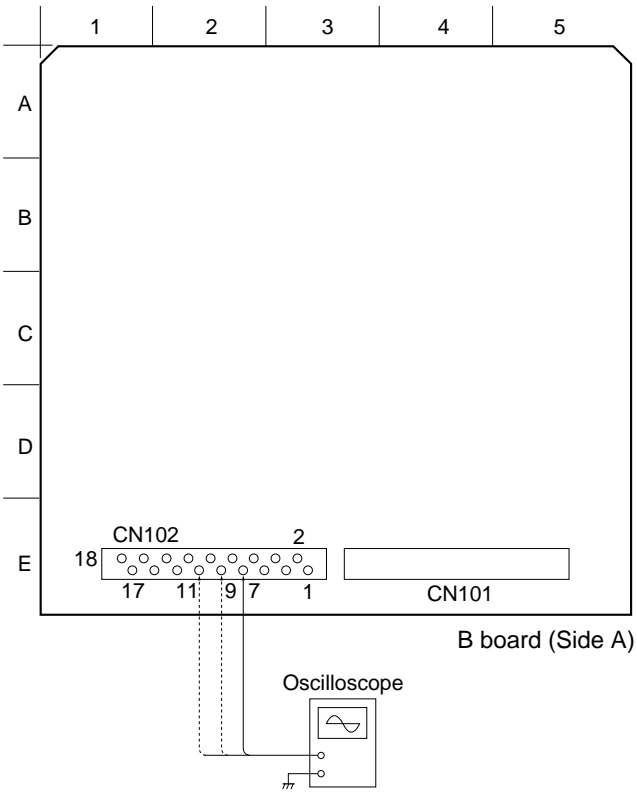
Equipment Used

- HD SDI signal generator: TG15B6
- Monitor: PHM-20M8U (Or PHM-14M8U)
- Oscilloscope
- 1 m BNC cable
- Adjusting screwdriver

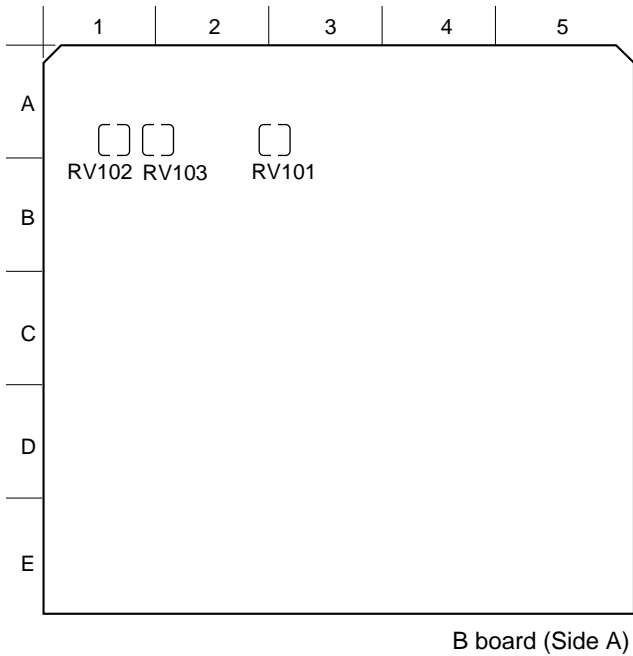
Switch, Control Settings

- Monitor control panel
- INPUT C (HD SDI) ON
- APERTURE MIN
- BRIGHT 50% (Center click)
- CHROMA 50% (Center click)
- CONTRAST 80% (Center click)

Connection

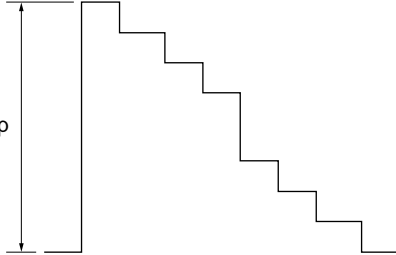


Adjusting Point

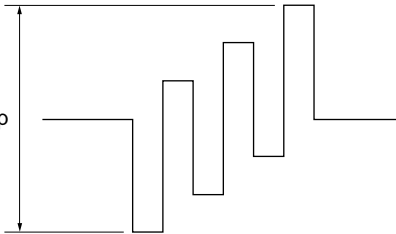


Adjusting Procedure

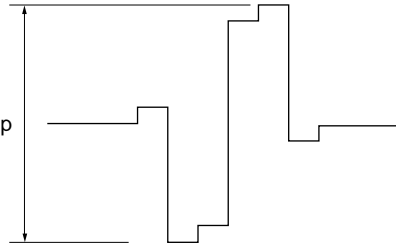
1. Y Gain Adjustment

| State during Adjustment | Specification | Adjusting Point |
|---|---|---------------------|
| <ul style="list-style-type: none"> Input the HD SDI color bar (100% color bar) signal into the INPUT C (HD SDI) input terminal. Connect the oscilloscope to pin ⑦ of CN102 (Y SDI). | <ul style="list-style-type: none"> Output level of pin ⑦ of CN102 (Y SDI): $700 \pm 10 \text{ mV p-p}$  | RV101 (A-3) B Board |

2. PB Gain Board

| State during Adjustment | Specification | Adjusting Point |
|--|---|---------------------|
| <ul style="list-style-type: none"> Input the HD SDI color bar (100% color bar) signal into the INPUT C (HD SDI) input terminal. Connect the oscilloscope to pin ⑨ of CN102 (PB SDI). | <ul style="list-style-type: none"> Output level of pin ⑨ of CN102 (PB SDI): $700 \pm 10 \text{ mV p-p}$  | RV103 (A-1) B Board |

3. PR Gain Board

| State during Adjustment | Specification | Adjusting Point |
|--|--|---------------------|
| <ul style="list-style-type: none"> Input the HD SDI color bar (100% color bar) signal into the INPUT C (HD SDI) input terminal. Connect the oscilloscope to pin ⑪ of CN102 (PR SDI). | <ul style="list-style-type: none"> Output level of pin ⑪ of CN102 (PR SDI): $700 \pm 10 \text{ mV p-p}$  | RV102 (A-1) B Board |

SECTION 3

CIRCUIT DESCRIPTIONS

The BKM-301HD is composed of three blocks—power supply block, GC board, and B board.

The HD SDI serial signal from the BNC terminal connected to the back of the unit (PHM-14M8U/20M8U) is input to the module (HK-102) of the B board.

It is then converted to the parallel signal at the module, D/A converted in the B board to become the Y, Pb, and Pr signals. These signals are then input to the A board of the unit.

The power supply block generates 5 V from the AC input supplied from the G board of the unit.

The GC board generates 3.3 V, 1.2 V, –2 V, and –5 V from 5 V and supplies them to the module of the B board.

1. POWER SUPPLY BLOCK

AC voltage is supplied by connecting the N and L terminals of the terminal table to the connector (CN610) of the G board of the unit. When the AC voltage is supplied, the green LED (CR52) lights up.

5 V voltage is output between the + and – terminals of the terminal table by switching control.

This voltage is supplied to the connector (CN1) of the GC board.

2. GC BOARD

The circuit is divided into the circuits outputting 3.3 V and –5 V, and 1.2 V and –2 V. This is controlled by IC2 and IC3. IC2 and IC3 are switching regulator control ICs with the same 2-circuit input. The oscillation frequency is determined by the capacitor connected to Pin 1 and the resistor connected to pin ②.

The voltage obtained by resistance-dividing the 2.4 V reference voltage generated by IC1 is supplied to pins ④ and ⑭ of IC2 and IC3. This voltage is compared with the respective output voltages 3.3 V, 1.2 V, –2.0 V, –5 V, and the output voltages are stabilized by pulse width control.

The square wave output from pins ⑦ and ⑩ are amplified by Q4 to Q7, Q13 to Q16, Q18 to Q21, and Q23 to Q26, and output by Q8, Q9, Q17, Q22, Q27, and Q28.

It is then rectified by D1, D3, D4, D6, and D7, integrated by C17, C32, C37, and C44 to generate the d.c. voltage.

The output voltage is supplied to the B board via the A board of the unit from CN2.

The power supply of the fan attached to the bracket of the B board is supplied from pin ① of CN3. When the fan stops, the voltage of pin ③ of CN3 becomes 5 V, the protector of the unit operates to turn off the screen. At the same time, the remote LED on the front of the unit blinks 5 times.

3. B BOARD

The 1.48 GHz HD SDI signal input from the BNC terminal is converted to the Y, Pb, and Pr 10-bit parallel signals at the module (HK-102), and input to B board from CN103. The module (HK-102) must first be initialized to operate normally. The signals for initializing are SYIF 0 to 7 of pins ① to ⑧ of CN101, SYSTA 0 and 1 of pins ⑩ and ⑪, SYCS of pins ⑫, STB of pin ⑬, and RESET of pin ⑭. These signals are supplied to the module (HK-102) from CN103. The 10-bit Y signal output from pins ①A8 to ①A12, ①B8 to ①B12 of CN103 are connected to pins ⑤⑨ to ⑤⑨, and ⑥① to ⑥① of IC102.

The 10-bit Pb and Pr signals output from pins ①A2 to ①A6 and ①B2 to ①B6 of CN103 are connected to pins ④③ to ④③, and ④⑦ to ④② and ④④ of IC102.

The 74.25 MHz CLK signal output from pin ①B14 of CN103 is connected to pin ③③ of IC102. This signal serves as the basic clock of IC102.

IC102 is the PLD (programmable logic device) which loads data from the IC101 ROM and determines the internal circuit.

The VD, FRAME, and HD signals output from pins ①A14, ①B13 to ①A13 of CN103 are connected to pins ③③, ③④, and ③② of IC102. The H SYNC and V SYNC are generated from these signals and output from pins ①③ and ①③.

Pins ⑥⑥, ⑥⑧, ⑥⑨, and ⑦① determine the Y, Pb, and Pr signals and H SYNC phase. The signals move to the left of the screen when connected to HIGH (3.3 V).

The Y signal is latched inside IC102 to correct the time, and connected to D/A of IC104 from pins ⑥⑥ to ⑥②, and ⑥③ to ⑥⑥.

The Pb signal is also latched inside IC102 to correct the time, and connected to D/A of IC106 from pins ⑥⑦ to ⑥⑨, and ⑥⑩ to ⑥⑥ and ⑥⑨.

The Pr signal is also latched inside IC102 to correct the time, and connected to D/A of IC106 from pins ⑥⑩ to ⑥⑪, and ⑥⑫ to ⑥⑤.

The 74.25 MHz clock for the Y signal frequency converted by IC102 is output from pin ⑬④. The 37.2 MHz clock for P_B and P_R is connected to D/A from pin ④④.

IC104 is the D/A for the Y signal. Y signals subjected to D/A are output from pin ②④. The output level is adjusted by RV101.

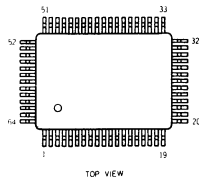
IC106 is the D/A for the P_B and P_R signals. P_B and P_R signals subjected to D/A are output from pins ⑥① and ⑥②. The output level of P_B and P_R is adjusted by RV103 and RV102.

The Y signal output from IC104 is passed through the low path filter (FL101), amplified by Q104 and Q105, and connected to the delay line (DL101). After this, they are once again amplified by Q108 and Q109, and output via the buffer (Q110). The P_B and P_R signals subjected to D/A at IC106 are passed through the low pass filter (FL102, and 103), amplified by Q122, Q123, Q117, and Q118, passed through the buffer (Q124, Q119), and output.

The H SYNC and V SYNC generated at IC102 are passed through the filter and buffer (Q111 to Q114) and output.

SECTION 4 SEMICONDUCTORS

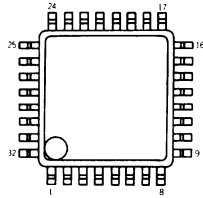
CXD2308Q



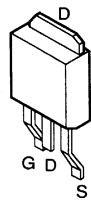
DTC144EKA
2SA1037K
2SC2412K
2SC3545



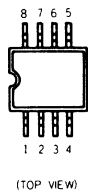
CXD2315Q



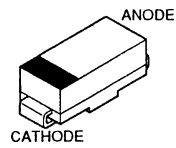
2SJ182S



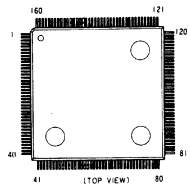
EPC1064PC8
TL431CPS



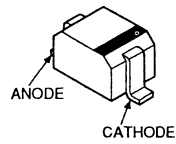
EC10QS06



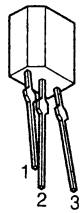
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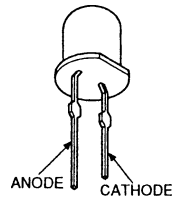
RD6.2SB-1



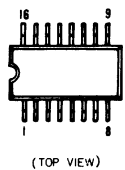
LM4040BIM3X-5.0



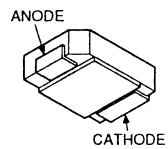
TLR124



TL1451ACPW



NSQ03A06



SECTION 5

EXPLODED VIEWS

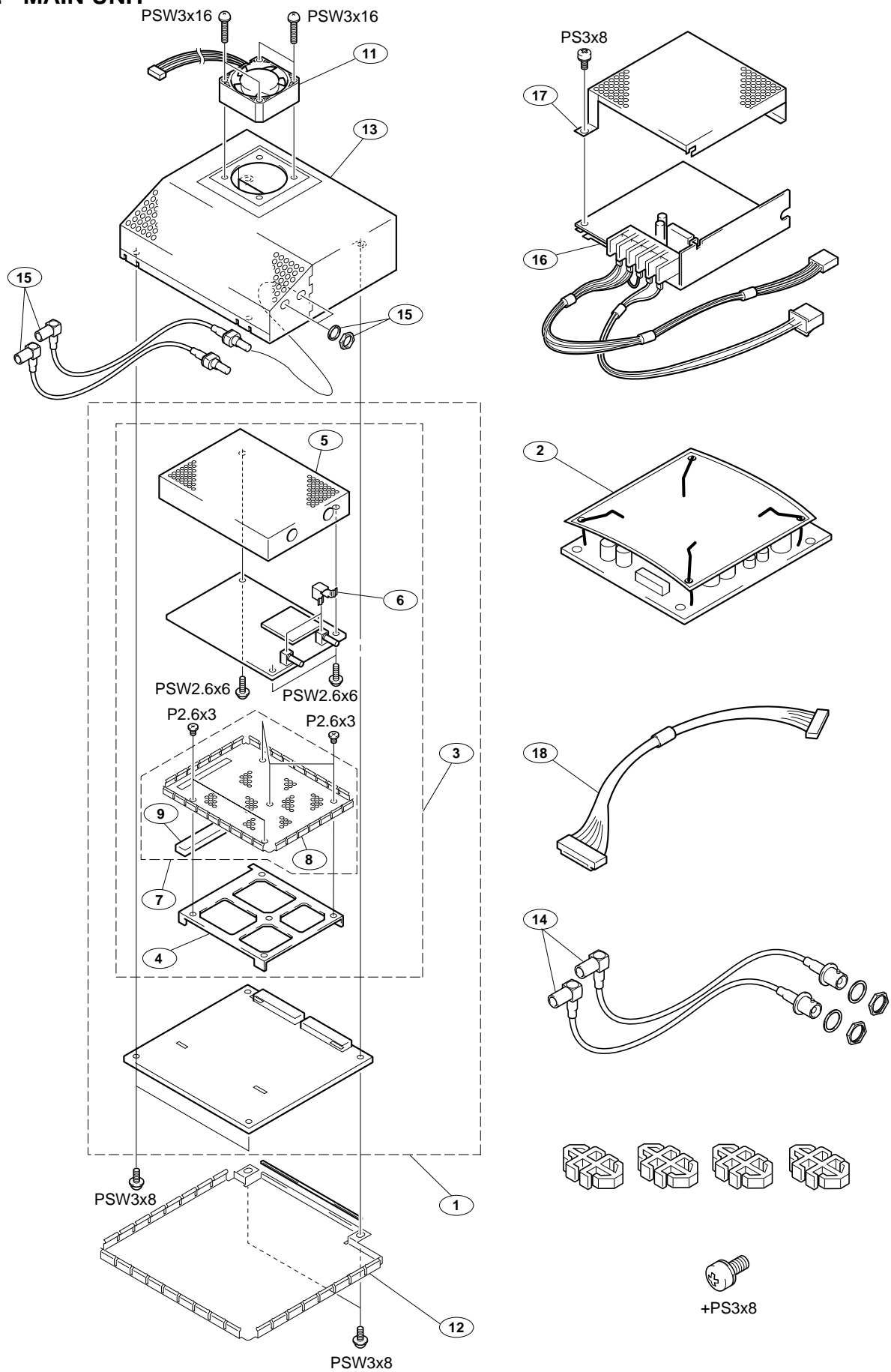
NOTE :

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remarks column.
- Items marked “ * ” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified marked \triangle are critical for safety.
Replace only with the part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

5-1. MAIN UNIT



| REF NO. | | PART NO. | DESCRIPTION | REMARK |
|---------|---|--------------|--------------------------------|--------|
| 1 | * | A-1135-913-A | B COMPLETE PC BOARD | 3-9 |
| 2 | * | A-1316-330-A | GC COMPLETE PC BOARD | |
| 3 | * | A-1482-655-A | BLOCK COMPLETE ASSY, SDI | |
| 4 | * | 4-060-515-01 | STAND, HD SDI SHIELD | |
| 5 | * | 4-060-517-03 | SHIELD (MAIN), HD SDI | |
| 6 | * | 4-060-510-01 | SPRING, EARTH | 8, 9 |
| 7 | * | 4-060-512-01 | SHIELD (ASSY), HD SDI | |
| 8 | * | 4-060-518-01 | SHIELD (LOWER), HD SDI | |
| 9 | * | 4-060-513-01 | SHIELD, CONNECTOR | |
| 11 | * | 1-763-038-11 | MOTOR, DC FAN | |
| 12 | * | 4-060-514-03 | CASE (UPPER), SHIELD | |
| 13 | * | 4-060-516-02 | CASE (MAIN), SHIELD | |
| 14 | | 1-782-942-11 | CABLE ASSY, COAXIAL | |
| 15 | | 1-782-943-11 | CABLE ASSY, COAXIAL | |
| 16 | △ | 1-413-595-12 | SWITCHING REGULATOR(FAW05-3RO) | |
| 17 | | 4-039-284-01 | COVER | |
| 18 | * | 1-900-232-48 | CONNECTOR ASSY, 8P | |

SECTION 6

ELECTRICAL PARTS LIST

B

NOTE :

The components identified marked \triangle are critical for safety.
Replace only with the part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

When indicating parts by reference number, please include the board name.

RESISTORS

- All resistors are in ohms
- F : nonflammable

CAPACITORS

- PF : μF

| REF NO. | PART NO. | DESCRIPTION | REMARK | REF NO. | PART NO. | DESCRIPTION | REMARK |
|---------|----------------|------------------------------|--------|---------|--------------|-----------------------|--------|
| | * A-1135-913-A | B COMPLETE PC BOARD ***** | | C143 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V |
| | | | | C144 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V |
| | 1-526-652-21 | SOCKET, IC DP (8P) (IC101) | | C145 | 1-126-392-11 | ELECT CHIP 100MF 20% | 6.3V |
| | * A-1482-655-A | BLOCK COMPLETE ASSY, SDI | | C146 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| | | <CAPACITOR> | | C147 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V |
| C101 | 1-126-392-11 | ELECT CHIP 100MF 20% | 6.3V | C148 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V |
| C102 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C149 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V |
| C103 | 1-126-392-11 | ELECT CHIP 100MF 20% | 6.3V | C150 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V |
| C104 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C151 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V |
| C105 | 1-126-392-11 | ELECT CHIP 100MF 20% | 6.3V | C152 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V |
| C106 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C153 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V |
| C107 | 1-126-392-11 | ELECT CHIP 100MF 20% | 6.3V | C154 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V |
| C108 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C160 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V |
| C109 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C161 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V |
| C110 | 1-126-392-11 | ELECT CHIP 100MF 20% | 6.3V | C162 | 1-163-038-91 | CERAMIC CHIP 0.1MF | 25V |
| C111 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C163 | 1-163-038-91 | CERAMIC CHIP 0.1MF | 25V |
| C112 | 1-126-391-11 | ELECT CHIP 47MF 20% | 6.3V | C164 | 1-163-038-91 | CERAMIC CHIP 0.1MF | 25V |
| C113 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C165 | 1-163-038-91 | CERAMIC CHIP 0.1MF | 25V |
| C114 | 1-126-391-11 | ELECT CHIP 47MF 20% | 6.3V | C166 | 1-163-038-91 | CERAMIC CHIP 0.1MF | 25V |
| C115 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C167 | 1-163-038-91 | CERAMIC CHIP 0.1MF | 25V |
| C116 | 1-164-346-11 | CERAMIC CHIP 1MF | 16V | C168 | 1-163-038-91 | CERAMIC CHIP 0.1MF | 25V |
| C117 | 1-126-391-11 | ELECT CHIP 47MF 20% | 6.3V | C169 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C118 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C170 | 1-135-216-11 | TANTAL. CHIP 10MF 20% | 10V |
| C119 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C171 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C120 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C172 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C122 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C173 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C123 | 1-163-235-11 | CERAMIC CHIP 22PF 5% | 50V | C174 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C124 | 1-163-231-11 | CERAMIC CHIP 15PF 5% | 50V | C175 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C125 | 1-163-087-00 | CERAMIC CHIP 4PF 0.25PF | 50V | C176 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C126 | 1-163-235-11 | CERAMIC CHIP 22PF 5% | 50V | C177 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C127 | 1-163-231-11 | CERAMIC CHIP 15PF 5% | 50V | C178 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C128 | 1-163-087-00 | CERAMIC CHIP 4PF 0.25PF | 50V | C179 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C129 | 1-163-038-91 | CERAMIC CHIP 0.1MF | 25V | C180 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C130 | 1-163-038-91 | CERAMIC CHIP 0.1MF | 25V | C181 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C131 | 1-163-038-91 | CERAMIC CHIP 0.1MF | 25V | C182 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C132 | 1-163-038-91 | CERAMIC CHIP 0.1MF | 25V | C183 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C133 | 1-163-038-91 | CERAMIC CHIP 0.1MF | 25V | C184 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C134 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C185 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C135 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C186 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C136 | 1-128-057-11 | ELECT 330MF 20% | 6.3V | C187 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C139 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C188 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C141 | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V | C189 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| C142 | 1-126-392-11 | ELECT CHIP 100MF 20% | 6.3V | C190 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |
| | | | | C191 | 1-109-982-11 | CERAMIC CHIP 1MF 10% | 10V |

| REF NO. | PART NO. | DESCRIPTION | REMARK | | | REF NO. | PART NO. | DESCRIPTION | REMARK | | |
|---------|----------------|-------------------------------|--------|-----|-----|---------|--------------|---------------------------|--------|-------|-------|
| C192 | 1-109-982-11 | CERAMIC CHIP | 1MF | 10% | 10V | J1101 | 1-216-295-91 | CONDUCTOR, CHIP (2012) | | | |
| C193 | 1-109-982-11 | CERAMIC CHIP | 1MF | 10% | 10V | J1102 | 1-216-295-91 | CONDUCTOR, CHIP (2012) | | | |
| C194 | 1-109-982-11 | CERAMIC CHIP | 1MF | 10% | 10V | J1104 | 1-216-295-91 | CONDUCTOR, CHIP (2012) | | | |
| C195 | 1-109-982-11 | CERAMIC CHIP | 1MF | 10% | 10V | J1105 | 1-216-295-91 | CONDUCTOR, CHIP (2012) | | | |
| C1101 | 1-135-166-21 | TANTAL CHIP | 47MF | 20% | 10V | | | <COIL> | | | |
| | | <CONNECTOR> | | | | L101 | 1-410-200-31 | INDUCTOR CHIP | 4.7μH | | |
| CN101 | 1-573-300-11 | CONNECTOR, BOARD TO BOARD 18P | | | | L102 | 1-408-597-31 | INDUCTOR | 3.3μH | | |
| CN102 | * 1-764-815-11 | CONNECTOR, BOARD TO BOARD 18P | | | | L103 | 1-410-200-31 | INDUCTOR CHIP | 4.7μH | | |
| CN103 | * 1-782-954-11 | CONNECTOR, BOARD TO BOARD | | | | | | <TRANSISTOR> | | | |
| | | <DIODE> | | | | Q101 | 1-801-806-11 | TRANSISTOR DTC144EKA-T146 | | | |
| D101 | 8-719-812-41 | DIODE TLR124 | | | | Q102 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| D1101 | 8-719-404-49 | DIODE MA111-TX | | | | Q103 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| | | <DELAY LINE> | | | | Q104 | 8-729-112-65 | TRANSISTOR 2SA1462-Y33 | | | |
| | | | | | | Q105 | 8-729-107-31 | TRANSISTOR 2SC3545-T43 | | | |
| DL101 | 1-411-830-21 | DELAY LINE | | | | Q106 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| | | <FERRITE BEAD> | | | | Q107 | 8-729-216-22 | TRANSISTOR 2SA1162-G | | | |
| FB101 | 1-410-396-71 | INDUCTOR 0.45μH | | | | Q108 | 8-729-112-65 | TRANSISTOR 2SA1462-Y33 | | | |
| | | <FILTER> | | | | Q109 | 8-729-107-31 | TRANSISTOR 2SC3545-T43 | | | |
| FL101 | 1-233-606-21 | FILTER (SMD), LOW PASS | | | | Q110 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| FL102 | 1-233-601-11 | FILTER (SMD), LOW PASS | | | | Q111 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| FL103 | 1-233-601-11 | FILTER (SMD), LOW PASS | | | | Q112 | 8-729-216-22 | TRANSISTOR 2SA1162-G | | | |
| FL104 | 1-233-313-11 | FILTER, CHIP EMI | | | | Q113 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| FL105 | 1-233-313-11 | FILTER, CHIP EMI | | | | Q114 | 8-729-216-22 | TRANSISTOR 2SA1162-G | | | |
| FL106 | 1-233-313-11 | FILTER, CHIP EMI | | | | Q115 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| FL107 | 1-233-313-11 | FILTER, CHIP EMI | | | | Q116 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| FL108 | 1-233-313-11 | FILTER, CHIP EMI | | | | Q117 | 8-729-112-65 | TRANSISTOR 2SA1462-Y33 | | | |
| FL109 | 1-233-313-11 | FILTER, CHIP EMI | | | | Q118 | 8-729-107-31 | TRANSISTOR 2SC3545-T43 | | | |
| FL110 | 1-233-313-11 | FILTER, CHIP EMI | | | | Q119 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| FL111 | 1-233-313-11 | FILTER, CHIP EMI | | | | Q120 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| FL112 | 1-233-313-11 | FILTER, CHIP EMI | | | | Q121 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| FL113 | 1-233-313-11 | FILTER, CHIP EMI | | | | Q122 | 8-729-112-65 | TRANSISTOR 2SA1462-Y33 | | | |
| FL115 | 1-233-313-11 | FILTER, CHIP EMI | | | | Q123 | 8-729-107-31 | TRANSISTOR 2SC3545-T43 | | | |
| FL117 | 1-233-313-11 | FILTER, CHIP EMI | | | | Q124 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| FL118 | 1-233-313-11 | FILTER, CHIP EMI | | | | Q1101 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | | |
| FL119 | 1-233-313-11 | FILTER, CHIP EMI | | | | | | <RESISTOR> | | | |
| FL120 | 1-233-313-11 | FILTER, CHIP EMI | | | | R101 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W |
| FL121 | 1-233-313-11 | FILTER, CHIP EMI | | | | R102 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W |
| FL122 | 1-233-313-11 | FILTER, CHIP EMI | | | | R103 | 1-216-043-91 | METAL GLAZE | 560 | 5% | 1/10W |
| FL123 | 1-233-313-11 | FILTER, CHIP EMI | | | | R104 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W |
| FL124 | 1-233-313-11 | FILTER, CHIP EMI | | | | R105 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W |
| FL125 | 1-233-313-11 | FILTER, CHIP EMI | | | | R106 | 1-216-295-11 | CONDUCTOR, CHIP (2012) | | | |
| FL126 | 1-233-313-11 | FILTER, CHIP EMI | | | | R109 | 1-216-073-00 | METAL GLAZE | 10K | 5% | 1/10W |
| FL127 | 1-233-313-11 | FILTER, CHIP EMI | | | | R110 | 1-216-073-00 | METAL GLAZE | 10K | 5% | 1/10W |
| | | <IC> | | | | R111 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W |
| IC101 | 8-759-534-08 | IC EPC1064PC8-HD2 | | | | R112 | 1-216-627-11 | METAL CHIP | 100 | 0.50% | 1/10W |
| IC102 | 8-759-466-74 | IC EPF8452AQC160-4 | | | | R113 | 1-216-657-11 | METAL CHIP | 1.8K | 0.50% | 1/10W |
| IC104 | 8-752-375-98 | IC CXD2315Q | | | | R115 | 1-216-665-11 | METAL CHIP | 3.9K | 0.50% | 1/10W |
| IC105 | 8-759-929-26 | IC TL431CPS | | | | R116 | 1-216-295-11 | CONDUCTOR, CHIP (2012) | | | |
| IC106 | 8-752-357-63 | IC CXD2308Q | | | | R117 | 1-216-638-11 | METAL CHIP | 300 | 0.50% | 1/10W |
| | | <CHIP CONDUCTOR> | | | | R118 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W |
| JR101 | 1-216-295-91 | CONDUCTOR, CHIP (2012) | | | | R119 | 1-216-639-11 | METAL CHIP | 330 | 0.50% | 1/10W |
| JR102 | 1-216-295-91 | CONDUCTOR, CHIP (2012) | | | | R120 | 1-216-025-91 | METAL GLAZE | 100 | 5% | 1/10W |
| | | | | | | R121 | 1-216-025-91 | METAL GLAZE | 100 | 5% | 1/10W |
| | | | | | | R122 | 1-216-651-11 | METAL CHIP | 1K | 0.50% | 1/10W |
| | | | | | | R123 | 1-216-047-91 | METAL GLAZE | 820 | 5% | 1/10W |

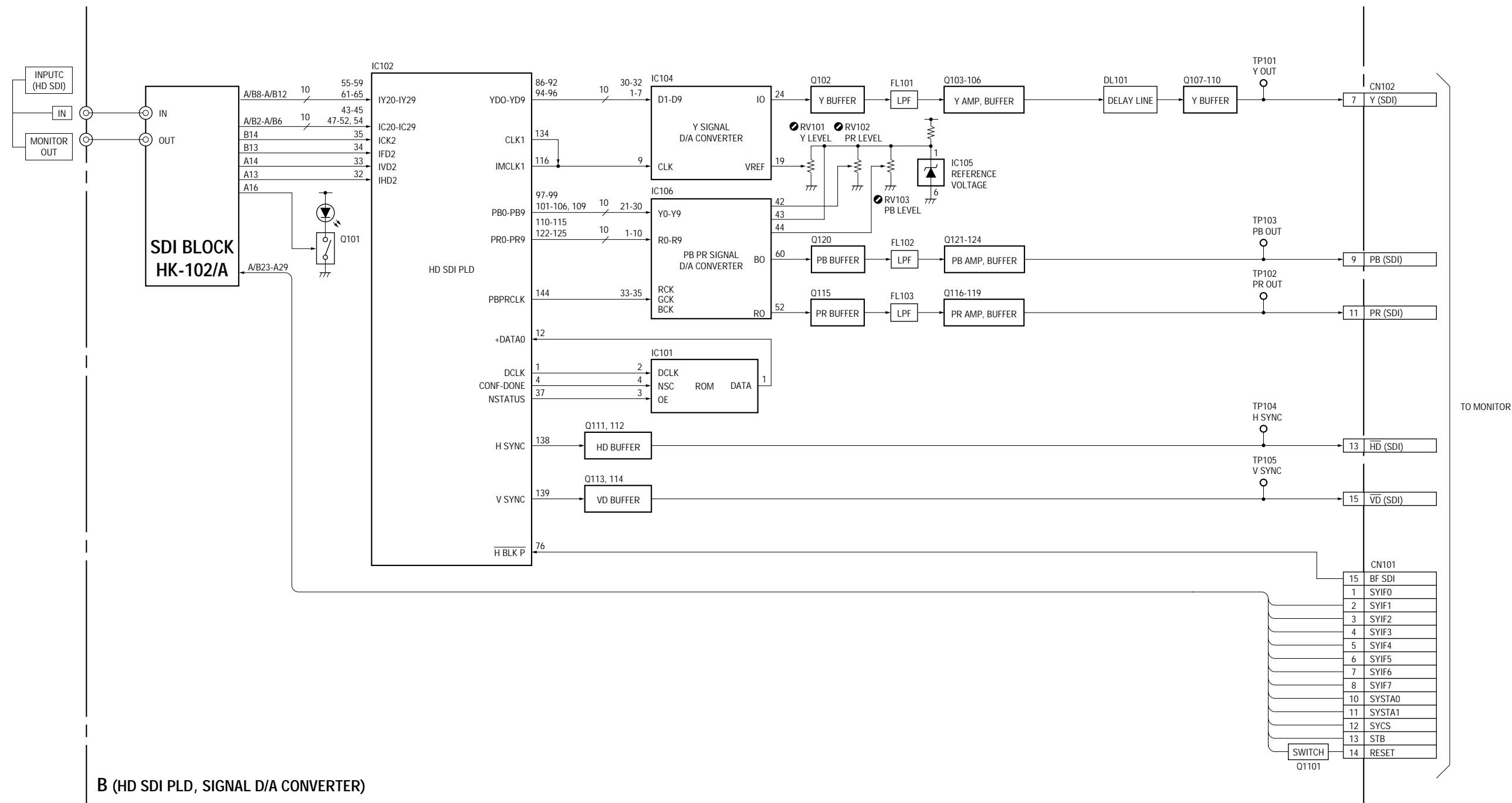
| REF NO. | PART NO. | DESCRIPTION | REMARK | | | REF NO. | PART NO. | DESCRIPTION | REMARK | | |
|---------|--------------|-------------|--------|-------|-------|---------|--------------|------------------------|--------|-------|-------|
| R124 | 1-216-692-11 | METAL CHIP | 51K | 0.50% | 1/10W | R190 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R125 | 1-216-651-11 | METAL CHIP | 1K | 0.50% | 1/10W | R191 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R127 | 1-216-651-11 | METAL CHIP | 1K | 0.50% | 1/10W | R192 | 1-216-615-11 | METAL CHIP | 33 | 0.50% | 1/10W |
| R128 | 1-216-057-00 | METAL GLAZE | 2.2K | 5% | 1/10W | R193 | 1-216-295-11 | CONDUCTOR, CHIP (2012) | | | |
| R129 | 1-216-025-91 | METAL GLAZE | 100 | 5% | 1/10W | R222 | 1-216-621-11 | METAL CHIP | 56 | 0.5% | 1/10W |
| | | | | | | R223 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R130 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W | R224 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R131 | 1-216-639-11 | METAL CHIP | 330 | 0.50% | 1/10W | R225 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R132 | 1-216-025-91 | METAL GLAZE | 100 | 5% | 1/10W | R242 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R133 | 1-216-639-11 | METAL CHIP | 330 | 0.50% | 1/10W | R243 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R134 | 1-216-053-00 | METAL GLAZE | 1.5K | 5% | 1/10W | R244 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| | | | | | | | | | | | |
| R135 | 1-216-025-91 | METAL GLAZE | 100 | 5% | 1/10W | R245 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R136 | 1-216-651-11 | METAL CHIP | 1K | 0.50% | 1/10W | R246 | 1-216-013-00 | METAL GLAZE | 33 | 5% | 1/10W |
| R137 | 1-216-660-11 | METAL CHIP | 2.4K | 0.50% | 1/10W | R247 | 1-216-013-00 | METAL GLAZE | 33 | 5% | 1/10W |
| R138 | 1-216-645-11 | METAL CHIP | 560 | 0.50% | 1/10W | R248 | 1-216-013-00 | METAL GLAZE | 33 | 5% | 1/10W |
| R139 | 1-216-651-11 | METAL CHIP | 1K | 0.50% | 1/10W | R249 | 1-216-013-00 | METAL GLAZE | 33 | 5% | 1/10W |
| | | | | | | | | | | | |
| R140 | 1-216-057-00 | METAL GLAZE | 2.2K | 5% | 1/10W | R250 | 1-216-013-00 | METAL GLAZE | 33 | 5% | 1/10W |
| R141 | 1-216-017-91 | METAL GLAZE | 47 | 5% | 1/10W | R251 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W |
| R142 | 1-216-051-00 | METAL GLAZE | 1.2K | 5% | 1/10W | R252 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W |
| R143 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W | R253 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W |
| R144 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W | R254 | 1-216-621-11 | METAL CHIP | 56 | 0.5% | 1/10W |
| | | | | | | | | | | | |
| R145 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W | R255 | 1-216-621-11 | METAL CHIP | 56 | 0.5% | 1/10W |
| R146 | 1-216-059-00 | METAL GLAZE | 2.7K | 5% | 1/10W | R256 | 1-216-621-11 | METAL CHIP | 56 | 0.5% | 1/10W |
| R147 | 1-216-059-00 | METAL GLAZE | 2.7K | 5% | 1/10W | R1000 | 1-216-057-00 | METAL GLAZE | 2.2K | 5% | 1/10W |
| R148 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W | R1101 | 1-216-073-00 | METAL GLAZE | 10K | 5% | 1/10W |
| R149 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W | R1102 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W |
| | | | | | | | | | | | |
| R150 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W | R1103 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W |
| R151 | 1-216-059-00 | METAL GLAZE | 2.7K | 5% | 1/10W | R1104 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R152 | 1-216-059-00 | METAL GLAZE | 2.7K | 5% | 1/10W | R1105 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R153 | 1-216-653-11 | METAL CHIP | 1.2K | 0.50% | 1/10W | R1106 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R154 | 1-216-653-11 | METAL CHIP | 1.2K | 0.50% | 1/10W | R1107 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| | | | | | | | | | | | |
| R155 | 1-216-653-11 | METAL CHIP | 1.2K | 0.50% | 1/10W | R1108 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R157 | 1-216-624-11 | METAL CHIP | 75 | 0.50% | 1/10W | R1109 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R158 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W | R1110 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R159 | 1-216-639-11 | METAL CHIP | 330 | 0.50% | 1/10W | R1111 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R160 | 1-216-639-11 | METAL CHIP | 330 | 0.50% | 1/10W | R1112 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| | | | | | | | | | | | |
| R161 | 1-216-025-91 | METAL GLAZE | 100 | 5% | 1/10W | R1113 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R162 | 1-216-047-91 | METAL GLAZE | 820 | 5% | 1/10W | R1114 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R163 | 1-216-025-91 | METAL GLAZE | 100 | 5% | 1/10W | R1115 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R164 | 1-216-651-11 | METAL CHIP | 1K | 0.50% | 1/10W | R1116 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R165 | 1-216-667-11 | METAL CHIP | 4.7K | 0.50% | 1/10W | R1117 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| | | | | | | | | | | | |
| R166 | 1-216-651-11 | METAL CHIP | 1K | 0.50% | 1/10W | R1118 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R167 | 1-216-645-11 | METAL CHIP | 560 | 0.50% | 1/10W | R1119 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R169 | 1-216-057-00 | METAL GLAZE | 2.2K | 5% | 1/10W | R1120 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R170 | 1-216-025-91 | METAL GLAZE | 100 | 5% | 1/10W | R1121 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R171 | 1-216-053-00 | METAL GLAZE | 1.5K | 5% | 1/10W | R1122 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| | | | | | | | | | | | |
| R172 | 1-216-624-11 | METAL CHIP | 75 | 0.50% | 1/10W | R1123 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R173 | 1-216-049-91 | METAL GLAZE | 1K | 5% | 1/10W | R1124 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R174 | 1-216-639-11 | METAL CHIP | 330 | 0.50% | 1/10W | R1125 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R175 | 1-216-639-11 | METAL CHIP | 330 | 0.50% | 1/10W | R1126 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R176 | 1-216-025-91 | METAL GLAZE | 100 | 5% | 1/10W | R1127 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| | | | | | | | | | | | |
| R177 | 1-216-047-91 | METAL GLAZE | 820 | 5% | 1/10W | R1128 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R178 | 1-216-025-91 | METAL GLAZE | 100 | 5% | 1/10W | R1129 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R179 | 1-216-651-11 | METAL CHIP | 1K | 0.50% | 1/10W | R1130 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R180 | 1-216-667-11 | METAL CHIP | 4.7K | 0.50% | 1/10W | R1131 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R181 | 1-216-651-11 | METAL CHIP | 1K | 0.50% | 1/10W | R1132 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| | | | | | | | | | | | |
| R183 | 1-216-645-11 | METAL CHIP | 560 | 0.50% | 1/10W | R1133 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R184 | 1-216-057-00 | METAL GLAZE | 2.2K | 5% | 1/10W | R1134 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R185 | 1-216-025-91 | METAL GLAZE | 100 | 5% | 1/10W | | | | | | |
| R186 | 1-216-053-00 | METAL GLAZE | 1.5K | 5% | 1/10W | | | | | | |

| REF NO. | PART NO. | DESCRIPTION | REMARK | | | REF NO. | PART NO. | DESCRIPTION | REMARK | | |
|-------------------------------------|--------------|---------------------|---------|-----|-------|----------------|----------------|------------------------------|--------|-----|------|
| R1135 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C36 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V |
| R1136 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C37 | 1-107-872-11 | ELECT | 3300MF | 20% | 6.3V |
| R1137 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C38 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V |
| R1138 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C39 | 1-107-876-11 | ELECT | 330MF | 20% | 6.3V |
| R1139 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C40 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V |
| R1140 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C42 | 1-126-396-11 | ELECT | 47MF | 20% | 16V |
| R1141 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C43 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V |
| R1142 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C44 | 1-126-928-11 | ELECT | 3300MF | 20% | 10V |
| R1143 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C45 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V |
| R1144 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C46 | 1-107-876-11 | ELECT | 330MF | 20% | 6.3V |
| R1145 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C47 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V |
| R1146 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C48 | 1-126-916-11 | ELECT | 1000MF | 20% | 6.3V |
| R1147 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C49 | 1-107-876-11 | ELECT | 330MF | 20% | 6.3V |
| R1148 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C50 | 1-107-876-11 | ELECT | 330MF | 20% | 6.3V |
| R1149 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W | C51 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V |
| <VARIABLE RESISTOR> | | | | | | C52 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V |
| RV101 | 1-238-801-11 | RES, ADJ, CERMET 5K | | | | <CONNECTOR> | | | | | |
| RV102 | 1-238-801-11 | RES, ADJ, CERMET 5K | | | | CN1 | * 1-564-507-11 | PLUG, CONNECTOR 4P | | | |
| RV103 | 1-238-801-11 | RES, ADJ, CERMET 5K | | | | CN2 | * 1-564-511-61 | PLUG, CONNECTOR 8P | | | |
| ***** | | | | | | CN3 | * 1-564-506-11 | PLUG, CONNECTOR 3P | | | |
| * A-1316-330-A GC COMPLETE PC BOARD | | | | | | <DIODE> | | | | | |
| ***** | | | | | | D1 | 8-719-210-43 | DIODE EC10QS06-TE12L | | | |
| <CAPACITOR> | | | | | | D2 | 8-759-274-67 | IC LM4040BIM3-5.0 | | | |
| C1 | 1-107-872-11 | ELECT | 3300MF | 20% | 6.3V | D3 | 8-719-059-22 | DIODE NSQ03A06-TE16L | | | |
| C2 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V | D4 | 8-719-059-22 | DIODE NSQ03A06-TE16L | | | |
| C3 | 1-126-391-11 | ELECT CHIP | 47MF | 20% | 6.3V | D5 | 8-759-274-67 | IC LM4040BIM3-5.0 | | | |
| C4 | 1-126-394-11 | ELECT CHIP | 10MF | 20% | 16V | D6 | 8-719-059-22 | DIODE NSQ03A06-TE16L | | | |
| C5 | 1-163-038-91 | CERAMIC CHIP | 0.1MF | | 25V | D7 | 8-719-059-22 | DIODE NSQ03A06-TE16L | | | |
| C7 | 1-126-391-11 | ELECT CHIP | 47MF | 20% | 6.3V | D8 | 8-719-158-20 | DIODE RD6.2SB1 | | | |
| C8 | 1-163-131-00 | CERAMIC CHIP | 390PF | 5% | 50V | D9 | 8-719-158-20 | DIODE RD6.2SB1 | | | |
| C9 | 1-104-563-11 | FILM CHIP | 0.1MF | 5% | 16V | D10 | 8-719-158-20 | DIODE RD6.2SB1 | | | |
| C10 | 1-163-251-11 | CERAMIC CHIP | 100PF | 5% | 50V | D11 | 8-719-158-20 | DIODE RD6.2SB1 | | | |
| C11 | 1-104-555-11 | FILM CHIP | 0.022MF | 5% | 16V | D12 | 8-719-404-49 | DIODE MA111 | | | |
| C12 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V | <FERRITE BEAD> | | | | | |
| C13 | 1-126-394-11 | ELECT CHIP | 10MF | 20% | 16V | FB1 | 1-410-396-41 | FERRITE BEAD INDUCTOR 0.45μH | | | |
| C14 | 1-126-391-11 | ELECT CHIP | 47MF | 20% | 6.3V | FB2 | 1-410-396-41 | FERRITE BEAD INDUCTOR 0.45μH | | | |
| C15 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V | FB3 | 1-410-396-41 | FERRITE BEAD INDUCTOR 0.45μH | | | |
| C16 | 1-126-924-11 | ELECT | 330MF | 20% | 6.3V | FB4 | 1-410-396-41 | FERRITE BEAD INDUCTOR 0.45μH | | | |
| C17 | 1-107-872-11 | ELECT | 3300MF | 20% | 6.3V | <IC> | | | | | |
| C18 | 1-163-038-91 | CERAMIC CHIP | 0.1MF | | 25V | IC1 | 8-759-929-26 | IC TL431CPS | | | |
| C19 | 1-126-394-11 | ELECT CHIP | 10MF | 20% | 16V | IC2 | 8-759-260-57 | IC TL1451ACPW-E05 | | | |
| C21 | 1-126-391-11 | ELECT CHIP | 47MF | 20% | 6.3V | IC3 | 8-759-260-57 | IC TL1451ACPW-E05 | | | |
| C22 | 1-163-131-00 | CERAMIC CHIP | 390PF | 5% | 50V | IC4 | 8-759-929-26 | IC TL431CPS | | | |
| C23 | 1-104-551-11 | FILM CHIP | 0.01MF | 5% | 16V | <COIL> | | | | | |
| C24 | 1-163-251-11 | CERAMIC CHIP | 100PF | 5% | 50V | L1 | 1-412-525-31 | INDUCTOR | 10μH | | |
| C25 | 1-104-555-11 | FILM CHIP | 0.022MF | 5% | 16V | L2 | 1-414-700-11 | INDUCTOR | 47μH | | |
| C26 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V | L3 | 1-414-700-11 | INDUCTOR | 47μH | | |
| C27 | 1-126-391-11 | ELECT CHIP | 47MF | 20% | 6.3V | L4 | 1-414-700-11 | INDUCTOR | 47μH | | |
| C28 | 1-126-394-11 | ELECT CHIP | 10MF | 20% | 16V | L5 | 1-414-700-11 | INDUCTOR | 47μH | | |
| C30 | 1-126-396-11 | ELECT CHIP | 47MF | 20% | 16V | L6 | 1-414-700-11 | INDUCTOR | 47μH | | |
| C31 | 1-126-396-11 | ELECT CHIP | 47MF | 20% | 16V | L7 | 1-414-700-11 | INDUCTOR | 47μH | | |
| C32 | 1-107-876-11 | ELECT | 330MF | 20% | 6.3V | L8 | 1-414-700-11 | INDUCTOR | 47μH | | |
| C33 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V | L9 | 1-412-549-31 | INDUCTOR | 1μH | | |
| C34 | 1-107-876-11 | ELECT | 330MF | 20% | 6.3V | L10 | 1-414-700-11 | INDUCTOR | 47μH | | |
| C35 | 1-163-031-11 | CERAMIC CHIP | 0.01MF | | 50V | | | | | | |

| REF NO. | PART NO. | DESCRIPTION | REMARK | REF NO. | PART NO. | DESCRIPTION | REMARK |
|---------|--------------|-----------------------------|--------|-------------------------------|---|-----------------------------|--------|
| L11 | 1-406-666-21 | COIL, CHOKE 150μH | | R26 | 1-216-685-11 | METAL CHIP 27K 0.50% 1/10W | |
| | | <TRANSISTOR> | | R27 | 1-216-101-00 | METAL GLAZE 150K 5% 1/10W | |
| Q1 | 1-801-806-11 | TRANSISTOR DTC144EKA-T146 | | R28 | 1-216-639-11 | METAL CHIP 330 0.50% 1/10W | |
| Q2 | 1-801-806-11 | TRANSISTOR DTC144EKA-T146 | | R29 | 1-216-089-91 | METAL GLAZE 47K 5% 1/10W | |
| Q3 | 1-801-806-11 | TRANSISTOR DTC144EKA-T146 | | R30 | 1-216-645-11 | METAL CHIP 560 0.50% 1/10W | |
| Q4 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | R31 | 1-216-651-11 | METAL CHIP 1K 0.50% 1/10W | |
| Q5 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | R32 | 1-216-675-11 | METAL CHIP 10K 0.50% 1/10W | |
| Q6 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | R34 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | |
| Q7 | 8-729-216-22 | TRANSISTOR 2SA1162-G | | R35 | 1-216-669-11 | METAL CHIP 5.6K 0.50% 1/10W | |
| Q8 | 8-729-322-45 | TRANSISTOR 2SJ182S | | R36 | 1-216-663-11 | METAL CHIP 3.3K 0.50% 1/10W | |
| Q9 | 8-729-322-45 | TRANSISTOR 2SJ182S | | R37 | 1-216-669-11 | METAL CHIP 5.6K 0.50% 1/10W | |
| Q10 | 1-801-806-11 | TRANSISTOR DTC144EKA-T146 | | R38 | 1-216-065-91 | METAL GLAZE 4.7K 5% 1/10W | |
| Q11 | 1-801-806-11 | TRANSISTOR DTC144EKA-T146 | | R39 | 1-216-065-91 | METAL GLAZE 4.7K 5% 1/10W | |
| Q12 | 1-801-806-11 | TRANSISTOR DTC144EKA-T146 | | R40 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | |
| Q13 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | R41 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | |
| Q14 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | R42 | 1-216-065-91 | METAL GLAZE 4.7K 5% 1/10W | |
| Q15 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | R43 | 1-216-065-91 | METAL GLAZE 4.7K 5% 1/10W | |
| Q16 | 8-729-216-22 | TRANSISTOR 2SA1162-G | | R44 | 1-216-009-00 | METAL GLAZE 22 5% 1/10W | |
| Q17 | 8-729-322-45 | TRANSISTOR 2SJ182S | | R45 | 1-216-009-00 | METAL GLAZE 22 5% 1/10W | |
| Q18 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | R46 | 1-216-053-00 | METAL GLAZE 1.5K 5% 1/10W | |
| Q19 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | R47 | 1-216-669-11 | METAL CHIP 5.6K 0.50% 1/10W | |
| Q20 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | R48 | 1-216-671-11 | METAL CHIP 6.8K 0.50% 1/10W | |
| Q21 | 8-729-216-22 | TRANSISTOR 2SA1162-G | | R49 | 1-216-683-11 | METAL CHIP 22K 0.50% 1/10W | |
| Q22 | 8-729-322-45 | TRANSISTOR 2SJ182S | | R50 | 1-216-065-91 | METAL GLAZE 4.7K 5% 1/10W | |
| Q23 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | R51 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | |
| Q24 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | R52 | 1-216-065-91 | METAL GLAZE 4.7K 5% 1/10W | |
| Q25 | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 | | R53 | 1-216-009-00 | METAL GLAZE 22 5% 1/10W | |
| Q26 | 8-729-216-22 | TRANSISTOR 2SA1162-G | | R54 | 1-216-009-00 | METAL GLAZE 22 5% 1/10W | |
| Q27 | 8-729-322-45 | TRANSISTOR 2SJ182S | | R55 | 1-216-097-91 | METAL GLAZE 100K 5% 1/10W | |
| Q28 | 8-729-322-45 | TRANSISTOR 2SJ182S | | ***** | | | |
| | | <RESISTOR> | | MISCELLANEOUS | | | |
| R1 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | | ***** | | | |
| R2 | 1-216-049-91 | METAL GLAZE 1K 5% 1/10W | | 1-782-942-11 | CABLE ASSY, COAXIAL | | |
| R3 | 1-216-093-00 | METAL GLAZE 68K 5% 1/10W | | * 1-900-232-48 | CONNECTOR ASSY, MICRO 8P | | |
| R4 | 1-216-651-11 | METAL CHIP 1K 0.50% 1/10W | | 1-763-038-11 | MOTOR, DC FAN | | |
| R5 | 1-216-651-11 | METAL CHIP 1K 0.50% 1/10W | | 1-782-943-11 | CABLE ASSY, COAXIAL | | |
| R6 | 1-216-659-11 | METAL CHIP 2.2K 0.50% 1/10W | | △ 1-413-595-12 | SWITCHING REGULATOR (FAW05-3RO) | | |
| R7 | 1-216-651-11 | METAL CHIP 1K 0.50% 1/10W | | ***** | | | |
| R8 | 1-216-099-00 | METAL GLAZE 120K 5% 1/10W | | ACCESSORY & RACKING MATERIALS | | | |
| R9 | 1-216-685-11 | METAL CHIP 27K 0.50% 1/10W | | ***** | | | |
| R10 | 1-216-665-11 | METAL CHIP 3.9K 0.50% 1/10W | | 3-861-132-02 | INSTRUCTIONS, OPERATING (Japanese/English) | | |
| R11 | 1-216-089-91 | METAL GLAZE 47K 5% 1/10W | | 3-861-133-02 | INSTALLATION MANUAL FOR DEALER (Japanese/English) | | |
| R12 | 1-216-627-11 | METAL CHIP 100 0.50% 1/10W | | * 4-061-403-01 | INDIVIDUAL CARTON | | |
| R13 | 1-216-675-11 | METAL CHIP 10K 0.50% 1/10W | | | | | |
| R14 | 1-216-651-11 | METAL CHIP 1K 0.50% 1/10W | | | | | |
| R15 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | | | | | |
| R16 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | | | | | |
| R17 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | | | | | |
| R18 | 1-216-009-00 | METAL GLAZE 22 5% 1/10W | | | | | |
| R19 | 1-216-009-00 | METAL GLAZE 22 5% 1/10W | | | | | |
| R20 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | | | | | |
| R21 | 1-216-093-00 | METAL GLAZE 68K 5% 1/10W | | | | | |
| R22 | 1-216-655-11 | METAL CHIP 1.5K 0.50% 1/10W | | | | | |
| R23 | 1-216-651-11 | METAL CHIP 1K 0.50% 1/10W | | | | | |
| R24 | 1-216-651-11 | METAL CHIP 1K 0.50% 1/10W | | | | | |
| R25 | 1-216-659-11 | METAL CHIP 2.2K 0.50% 1/10W | | | | | |

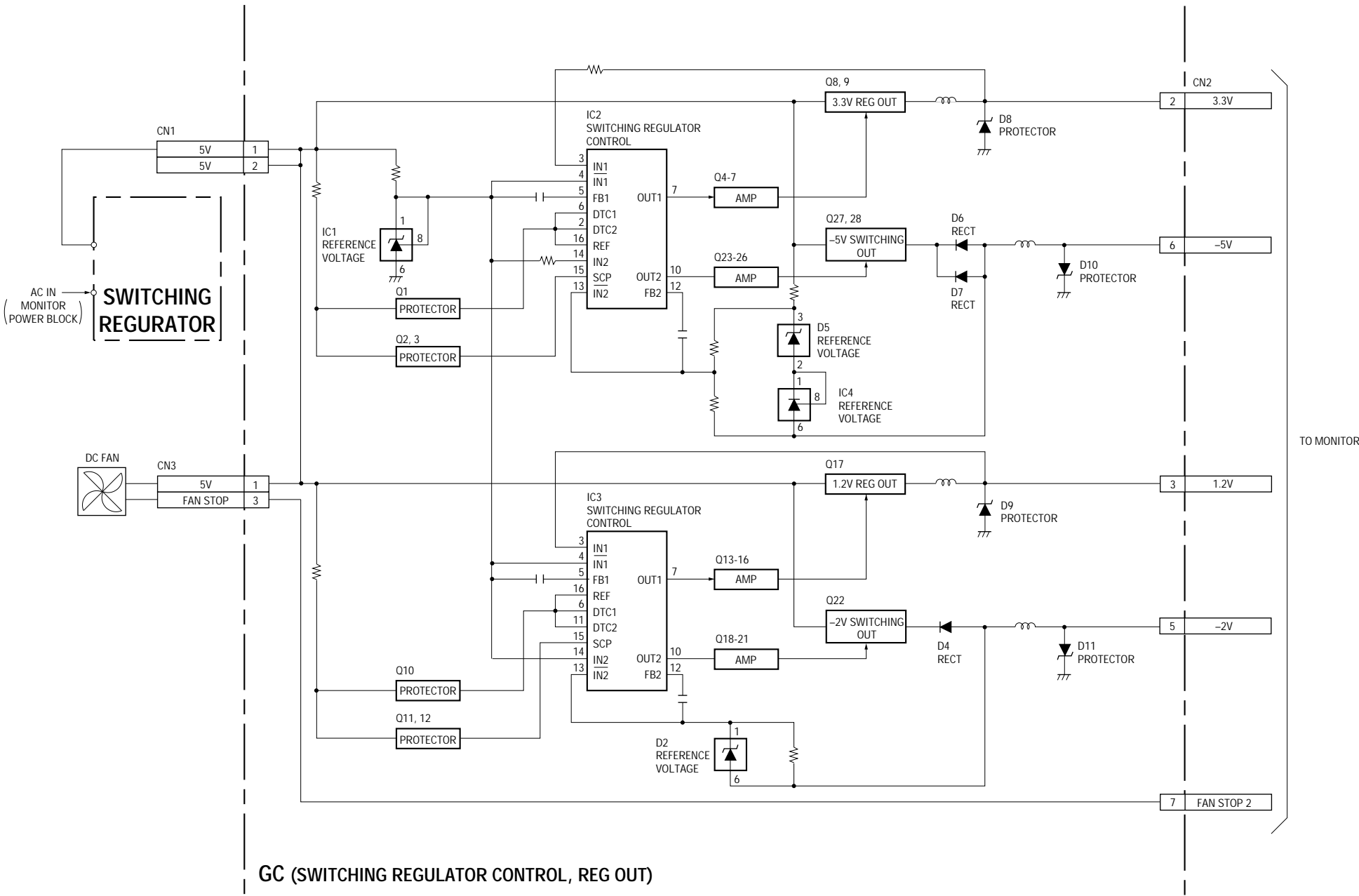
SECTION 7
BLOCK DIAGRAMS

7-1. B BLOCK DIAGRAM



B (HD SDI PLD, SIGNAL D/A CONVERTER)

7-2. GC BLOCK DIAGRAM







SECTION 8 DIAGRAMS

8-1. PRINTED WIRING BOARDS/SCHEMATIC DIAGRAMS

Note:

- All capacitors are in μF unless otherwise noted. pF: μF 50WV or less are not indicated except for electrolytics.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm
Rating electrical power 1/4W

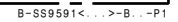
- All resistors are in ohms. (1M: 1000k Ω , 1k: 1000 Ω)
- Chip resistor are 1/10W unless otherwise noted.
-  : panel designation and adjustment repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- METAL CHIP (:RN, :RN-CP) resistor in 1%, 0.5%, 1/4W unless otherwise specified.
- All voltages are in V.
- Reading are taken with Hivision color-bar signal (R.G.B SYNC) input.
- Voltage are dc with respect to ground unless otherwise noted.
- Reading are taken with attach the PHM-20M8U monitor.
- Voltage variation may be noted due to normal production tolerancd.
-  : B+,
-  : B- line
-  : signal path
- Circled numbers are waveforms reference.

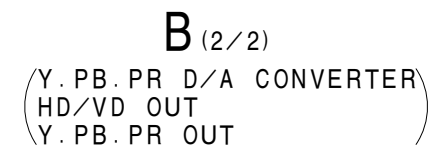
Reference information

| | | |
|-----------|---------|--------------------------|
| RESISTOR | : RN | METAL FILM |
| | : RC | SOLID |
| | : FPRD | NONFLAMMABLE CARBON |
| | : FUSE | NONFLAMMABLE FUSIBLE |
| | : RW | NONFLAMMABLE WIREWOUND |
| | : RS | NONFLAMMABLE METAL OXIDE |
| COIL | : RB | NONFLAMMABLE CEMENT |
| | : LF-8L | MICRO INDUCTOR |
| CAPACITOR | : TA | TANTALUM |
| | : PS | STYROL |
| | : PP | POLYPROPYLENE |
| | : PT | MYLAR |
| | : MPS | METALIZED POLYESTER |
| | : MPP | METALIZED POLYPROPYLENE |
| | : ALB | BIPOLAR |
| | : ALT | HIGH TEMPERATURE |
| | : ALR | HIGH RIPPLE |

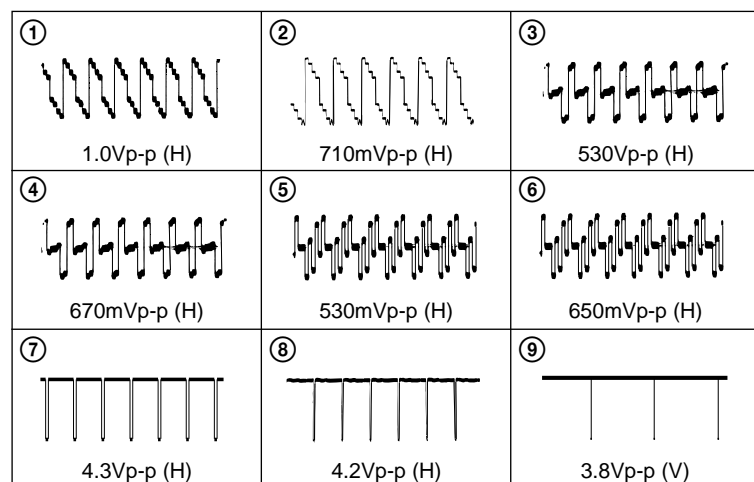
The components identified marked \triangle are critical for safety.
Replace only with the part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.



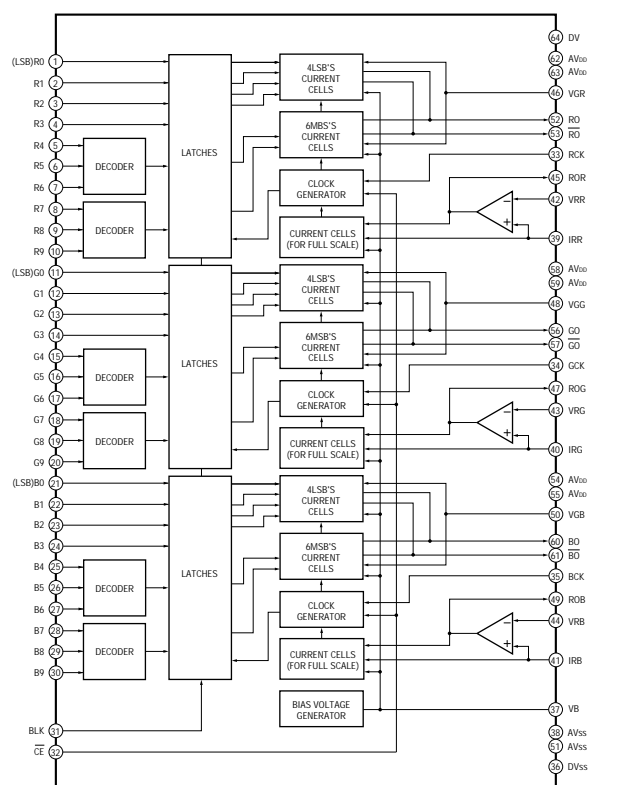


B Board Waveforms

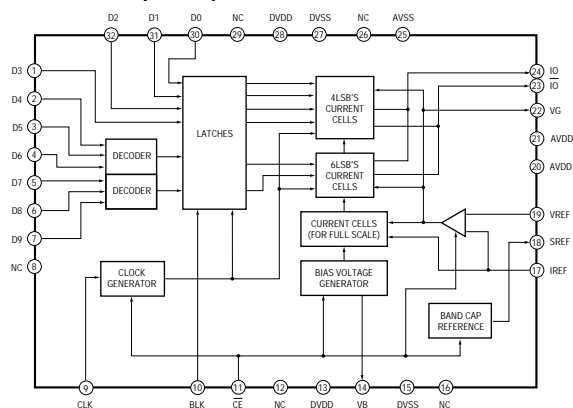


B Board IC Block Diagrams

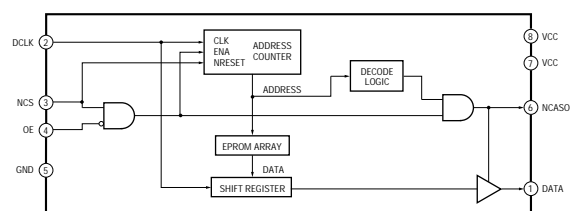
CXD2308Q (IC106)



CXD2315Q (IC104)



EPC1064PC8 (IC101)



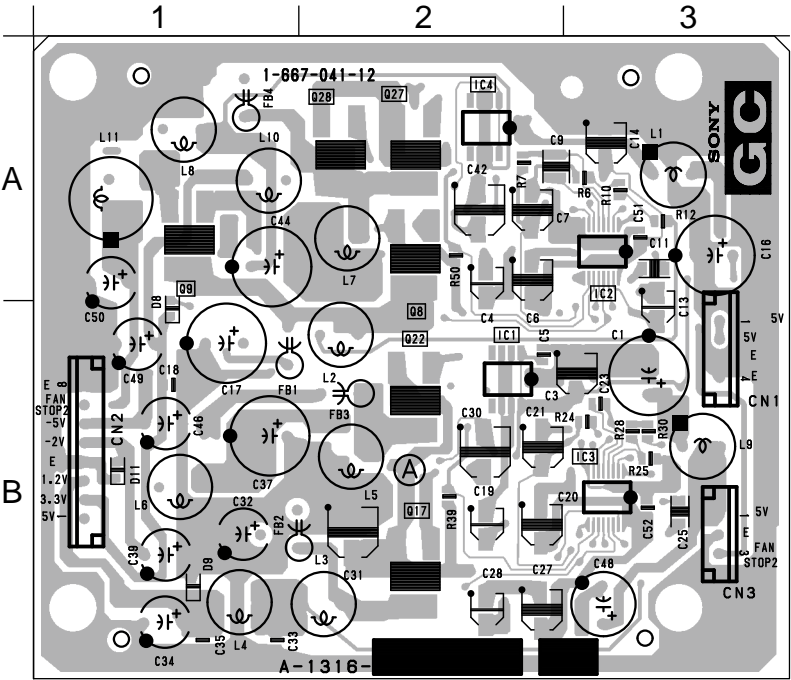
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GC
--
1-667-041-12

D1 * B-3
D2 * B-2
D3 * B-3
D4 * B-3
D5 * A-2
D6 * A-2
D7 * A-3
D8 B-1
D9 B-1
D10 * C-3
D11 B-1
D12 * B-1

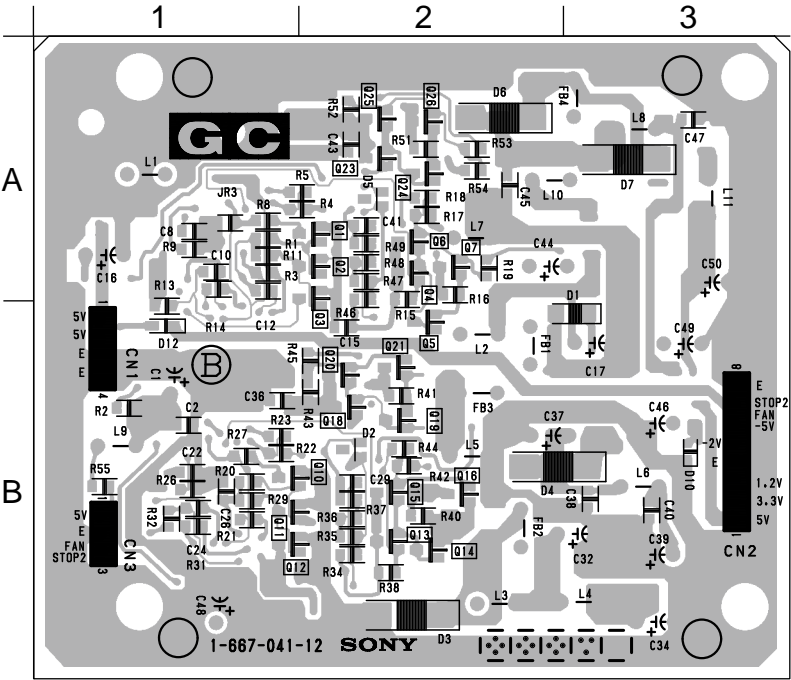
IC1 B-2
IC2 A-3
IC3 B-3
IC4 A-2

Q1 * A-2
Q2 * A-2
Q3 * A-2
Q4 * A-2
Q5 * B-2
Q6 * A-2
Q7 * A-2
Q8 A-2
Q9 A-1
Q10 * B-2
Q11 * B-2
Q12 * B-2
Q13 * B-2
Q14 * B-2
Q15 * B-2
Q16 * B-2
Q17 B-2
Q18 * B-2
Q19 * B-2
Q20 * B-2
Q21 * B-2
Q22 B-2
Q23 * A-2
Q24 * A-2
Q25 * A-2
Q26 * A-2
Q27 A-2
Q28 A-2

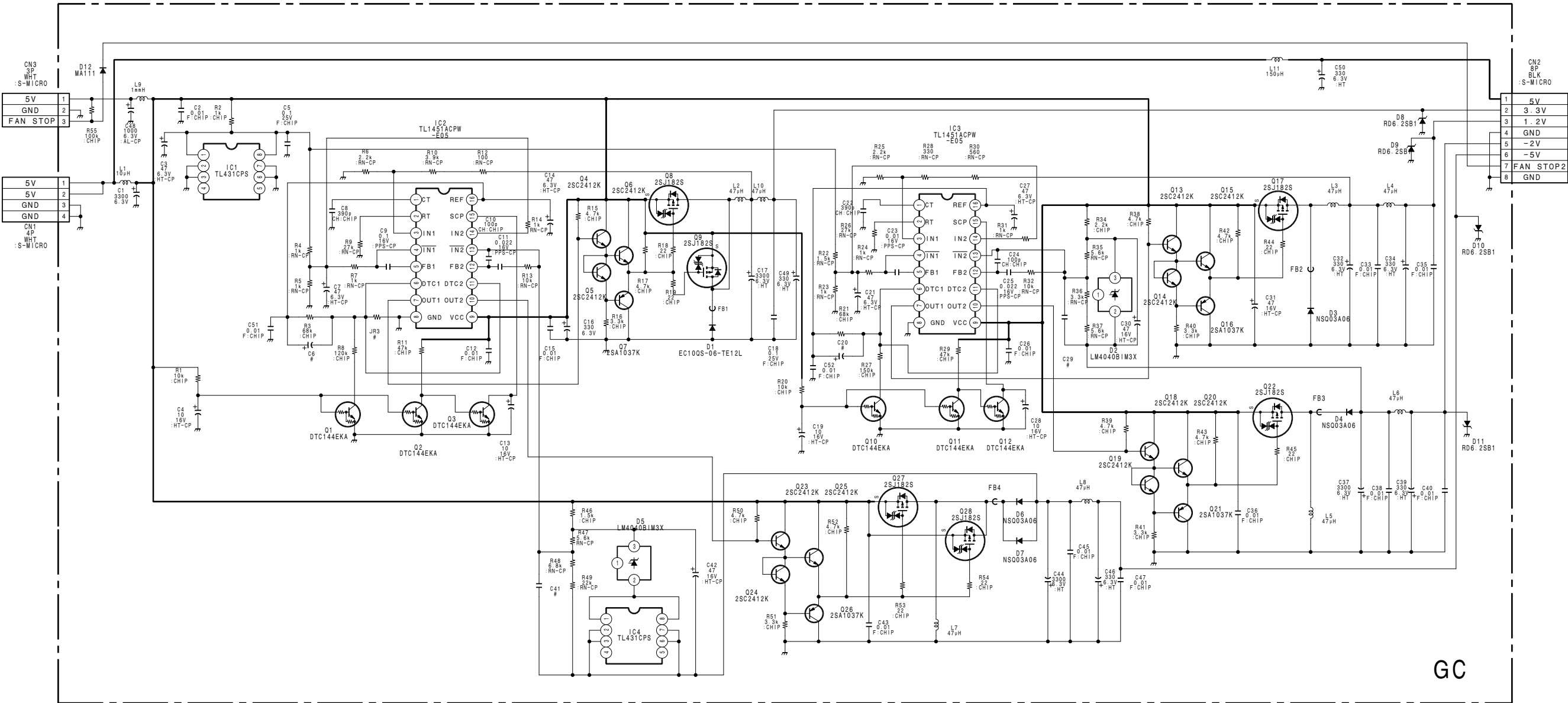
*:B Side mount



GC -A SIDE-
1-667-041-12

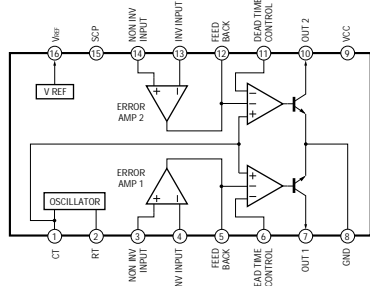


GC -B SIDE-
1-667-041-12



GC Board IC Block Diagram

TL1451ACW (IC2, 3)



The components identified marked \triangle are critical for safety. Replace only with the part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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